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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|------------------------------------|-------------|----------------------|---------------------|------------------|
| 10/580,656 | 05/25/2006 | Oliver Mamber | 1006/0146PUS1 | 5033 |
| 60601 | 7590 | 06/09/2010 | EXAMINER | |
| Muncy, Geissler, Olds & Lowe, PLLC | | | LEO, LEONARD R | |
| 4000 Legato Road | | | | |
| Suite 310 | | | ART UNIT | PAPER NUMBER |
| FAIRFAX, VA 22033 | | | 3744 | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/580,656 | MAMBER, OLIVER | |
| | Examiner | Art Unit | |
| | Leonard R. Leo | 3744 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 23 February 2010.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1 and 5-10 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1 and 5-10 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ . |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/10, 5/10</u> . | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

The amendment filed on February 23, 2010 has been entered. Claims 2-4 are cancelled, and claims 1 and 5-10 are pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakagawa et al in view of Jaffe et al.

Nakagawa et al (abstract) discloses an aluminum heat exchanger after-coated with a layer of alumina nanoparticles (i.e. 1 to 100 nm, page 2, last paragraph to page 3, second full paragraph) and a layer of silica nanoparticles (page 3, last paragraph), but does not disclose cerium nanoparticles.

Jaffe et al discloses adsorbent particulates in the form of inorganic oxide nanoparticles of silica and ceria (i.e. cerium oxide) are obvious variants of one another (column 6, lines 33-36) for the purpose of achieving a desired adsorbency.

Since Nakagawa et al and Jaffe et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Jaffe et al would have been recognized in the pertinent art of Nakagawa et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Nakagawa et al ceria (i.e. cerium oxide) for the purpose of

achieving a desired adsorbency as recognized by Jaffe et al. Furthermore, it would have been obvious to one of ordinary skill in the art to simply substitute one known element for another to obtain predictable results. *KSR Int'l Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1395 (2007)

Claims 1 and 7-10 rejected under 35 U.S.C. 103(a) as being unpatentable over Nakagawa et al in view of Jaffe et al as applied to claim 5 above, and further in view of Kojima et al.

The combined teachings of Nakagawa et al and Jaffe et al lacks a wetting contact angle with water of less than 40°.

Kojima et al (abstract) discloses an aluminum heat exchanger having a corrosion protective base layer after-coated with a layer of silica nanoparticles (i.e. 5 to 100 nm) having a contact angle with water of less than 20° for the purpose of achieving optimal hydrophilicity.

Since Nakagawa et al and Kojima et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Kojima et al would have been recognized in the pertinent art of Nakagawa et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Nakagawa et al an after-coated layer having a contact angle with water of less than 20° for the purpose of achieving optimal hydrophilicity as recognized by Kojima et al.

Regarding claim 6, the specific layer thickness is considered to be an obvious design expedient, producing no new and/or unexpected results and solving no stated problem. One of ordinary skill in the art would employ any layer thickness to achieve a desired strength, longevity, effectiveness or heat transfer.

Regarding claims 7-10, the presence of a method limitation in an apparatus claim bears limited patentable weight in this instance. See MPEP 2113.

Response to Arguments

The rejections under 35 U.S.C. 112, second paragraph, are withdrawn in view of the claim amendments.

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

No further comments are deemed necessary at this time.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard R. Leo whose telephone number is (571) 272-4916. The examiner can normally be reached on Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/ Leonard R. Leo /
PRIMARY EXAMINER
ART UNIT 3744

June 10, 2010